



SEQUENCE LISTING

<110> Korman, Alan
Halk, Edward L.
Lonberg, Nils
Medarex, Inc.

<120> Human CTLA-4 Antibodies and Their Uses

<130> 014643-010510US

<140> US 09/644,668

<141> 2000-08-24

<150> US 60/150,452

<151> 1999-08-24

<160> 41

<170> PatentIn Ver. 2.1

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<213> Artificial Sequence

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<223> Description of Artificial Sequence:cloning vector
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TECH

JA

RF

1470

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<213> Homo sapiens

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<223> preliminary sequence for heavy chain fragment
10D1.3

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ggtgacattt	atatcatatg	atggaaacaa	taaatactac	gcagactccg	tgaagggccg	180
attcaccatc	tccagagaca	attccaagaa	cacgctgtat	ctgcaaatga	acagcctgag	240
agctgaggac	acggctatat	attactgtgc	gaggaccggc	tggtctggggc	cctttgacta	300
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<211> 321

<212> DNA

<213> Homo sapiens

<220>

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 <223> Vk A-27 germline sequence

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 cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
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<210> 5
 <211> 95
 <212> PRT
 <213> Homo sapiens

<220>
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 Vk A-27 germline

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 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
 20 25 30
 Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
 35 40 45
 Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
 50 55 60
 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
 65 70 75 80
 Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser
 85 90 95

<210> 6
 <211> 325
 <212> DNA
 <213> Homo sapiens

<220>
 <223> light chain variable region (Vk), 10D1 from Vk
 A-27

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 gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
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 caagggacca aggtggaaat caaac 325

<210> 7
 <211> 108
 <212> PRT
 <213> Homo sapiens

<220>
 <223> light chain variable region predicted sequence for
 10D1 from Vk A-27

<400> 7
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 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Gly Ser Ser
 20 25 30
 Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
 35 40 45
 Ile Tyr Gly Ala Phe Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
 50 55 60
 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
 65 70 75 80
 Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
 85 90 95
 Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 8
 <211> 325
 <212> DNA
 <213> Homo sapiens

<220>
 <223> light chain variable region (Vk) 4B6 from Vk A-27

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 cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
 gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
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 caagggacca aggtggaaat caaac 325

<210> 9
 <211> 108
 <212> PRT
 <213> Homo sapiens

<220>
 <223> light chain variable region predicted sequence for
 4B6 from Vk A-27

<400> 9

Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
 1 5 10 15
 Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
 20 25 30
 Phe Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
 35 40 45
 Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
 50 55 60
 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
 65 70 75 80
 Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
 85 90 95
 Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
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<210> 10
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 <212> DNA
 <213> Homo sapiens

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 <223> Vk L-15 germline sequence

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 <212> PRT
 <213> Homo sapiens

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 <223> light chain variable region predicted sequence for
 Vk L-15 germline

<400> 11
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 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Trp
 20 25 30
 Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys Ser Leu Ile
 35 40 45
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro

65

70

75

80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr
85 90

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<211> 322
<212> DNA
<213> Homo sapiens

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<223> light chain variable region Vk 1E2 from Vk L-15

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gagaaagccc ctaagtccct gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
aggttcagcg gcagtggatc tgggacagat ttcactctca ccatcagcag cctgcagcct 240
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<210> 13
<211> 107
<212> PRT
<213> Homo sapiens

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<223> light chain variable region predicted sequence for
1E2 from Vk L-15

<400> 13
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Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Ser Ser Trp
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys Ser Leu Ile
35 40 45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asn Ser Tyr Pro Pro
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Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 14
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<212> DNA
<213> Homo sapiens

<220>

B20

<223> VH 3-30.3 germline sequence

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gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240
ctgcaaataga acagcctgag agctgaggac acggctgtgt attactgtgc gaga      294
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<210> 15

<211> 98

<212> PRT

<213> Homo sapiens

<220>

<223> heavy chain variable region predicted sequence for
VH 3-30.3 germline

<400> 15

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  1              5              10              15
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```
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
      20              25              30
```

```
Ala Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35              40              45
```

```
Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
      50              55              60
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```
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
      65              70              75              80
```

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Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
      85              90              95
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Ala Arg

<210> 16

<211> 355

<212> DNA

<213> Homo sapiens

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<223> heavy chain variable region VH 10D1 from VH 3-30.3

<400> 16

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<210> 17

<211> 118

B20

<212> PRT
 <213> Homo sapiens

<220>
 <223> heavy chain variable region predicted sequence for
 10D1 from VH 3-30.3

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 20 25 30
 Thr Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Thr Phe Ile Ser Tyr Asp Gly Asn Asn Lys Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Ile Tyr Tyr Cys
 85 90 95
 Ala Arg Thr Gly Trp Leu Gly Pro Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Leu Val Thr Val Ser Ser
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<210> 18
 <211> 355
 <212> DNA
 <213> Homo sapiens

<220>
 <223> heavy chain variable region VH 4B6 from VH 3-30.3

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 <212> PRT
 <213> Homo sapiens

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 20 25 30
 Thr Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Thr Phe Ile Ser Tyr Asp Gly Ser Asn Lys His Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Val Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Ile Tyr Tyr Cys
 85 90 95
 Ala Arg Thr Gly Trp Leu Gly Pro Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 B²⁰ Leu Val Thr Val Ser Ser
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<210> 20
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 <212> DNA
 <213> Homo sapiens

<220>
 <223> VH 3-33 germline sequence

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 gcagactccg tgaagggccg attcaccatc tccagagaca attccaagaa cacgctgtat 240
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<210> 21
 <211> 98
 <212> PRT
 <213> Homo sapiens

<220>
 <223> heavy chain variable region predicted sequence for
 VH 3-33 germline

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 Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Val Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg

<210> 22
 <211> 358
 <212> DNA
 <213> Homo sapiens

<220>
 <223> heavy chain variable region VH 1E2 from VH 3-33

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 aattatattg gtgcttttga tgtctggggc caagggacaa tggtcaccgt ctcttcag 358

<210> 23
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 <212> PRT
 <213> Homo sapiens

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 <223> heavy chain variable region predicted sequence for
 1E2 from VH 3-33

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 20 25 30
 Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Val Ile Trp Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Phe Tyr Cys
 85 90 95
 Ala Arg Ala Pro Asn Tyr Ile Gly Ala Phe Asp Val Trp Gly Gln Gly
 100 105 110
 Thr Met Val Thr Val Ser Ser
 115

<210> 24
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 <212> PRT
 <213> Homo sapiens

<220>
 <223> light chain CDR1 (HuMab 10D1)

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 1 5 10

<210> 25
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 <212> PRT
 <213> Homo sapiens

<220>
 <223> light chain CDR1 (HuMab 4B6)

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 1 5 10

<210> 26
 <211> 11
 <212> PRT
 <213> Homo sapiens

<220>
 <223> light chain CDR1 (HuMab 1E2)

<400> 26
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<223> Description of Artificial Sequence:kappa light chain plasmid pCK7-96 (partial)

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Bio

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Bio
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